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STOCHASTIC MODELS FOR DERIVING INSTANTANEOUS PRECIPITATION RATE--ETC(U)
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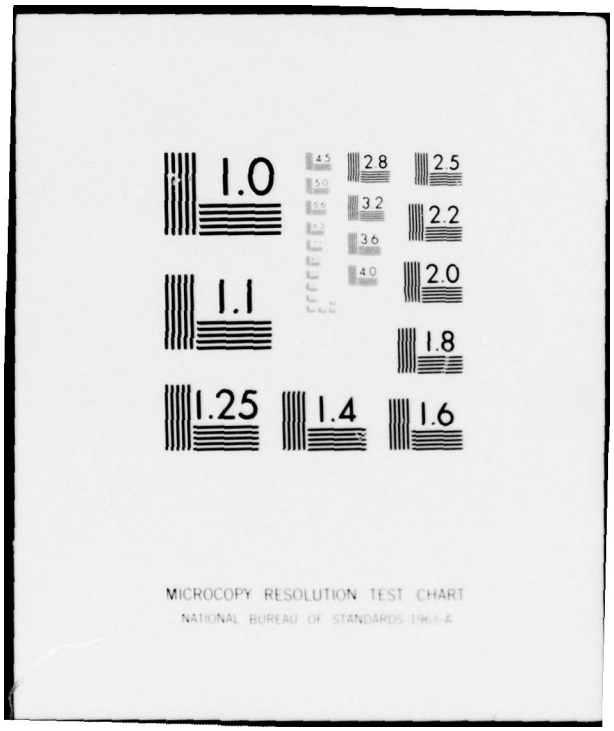
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STOCHASTIC MODELS FOR DERIVING INSTANTANEOUS PRECIPITATION RATE DISTRIBUTIONS

By
Allen R. Davis
Daniel J. McMorrow, Capt, USAF
USAFETAC, Scott AFB, IL 62225

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One-minute and 4-minute precipitation rate records are used to develop stochastic model relations between clock hours and 1-minute (or 4-minute) precipitation rate distributions. These models can be used to estimate annual and seasonal distributions of instantaneous precipitation rates for locations where distributions of clock-hour rates are known. The models are derived for 13 locations.

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PREFACE

"Clock-hour" precipitation rate distributions may be converted to distributions of precipitation rates measured over 1-minute and/or 4-minute intervals (sometimes referred to as "instantaneous" precipitation rates) using the models presented in this report. The models, their development, and their uses are described. They have been developed over a period of years. Particular note should be made of the contributions to this technique of Lt Col Gorden A. Beals, and Maj Patrick J. O'Reilly while assigned to USAFETAC.

It is apparent that distributions of precipitation rates over short time periods will be different from rates measured over longer time periods because of the averaging effect in the latter measurements. For practical purposes rates measured over 1-minute intervals may be used for most applications requiring short period distributions, although even these (1-minute rates) are composed of highly variable shorter term rates.

TABLE OF CONTENTS

LIST OF TABLES

STOCHASTIC MODELS FOR DERIVING INSTANTANEOUS PRECIPITATION RATE DISTRIBUTIONS

Introduction

This report presents model distributions of instantaneous precipitation rates as a function of clock-hour precipitation rates for 13 locations representing various climatological regions. The models are developed using a technique suggested by Briggs and Harker [1] and refined by O'Reilly [14]. The data used to develop the models have been extracted from the work of Sims and Jones of the Illinois State Water Survey [15]. This is a continuation of the earlier work of Mueller and Sims [11] [12] [13]. The actual data were provided to USAFETAC on tape from AFCRL. The tapes also contain data from stations in Southeast Asia. This report is not intended to outline the various sampling techniques [4] [15] other than to say that a recording rain gauge or a "drop camera" was used and the precipitation rates could be read to a precision of 1 minute or 4 minutes. One-minute statistical models (wet/dry seasons and annual) are compiled for Urbana, Illinois; Majuro Atoll, Marshall Islands; Miami, Florida; Coweeta Hydrologic Laboratory (near Franklin, North Carolina); Island Beach State Park, New Jersey; Woody Island (near Kodiak, Alaska). Four-minute statistical models (wet/dry seasons and annual) are compiled for Freiburg, Germany; Koblenz, Germany; Pleiku, Vietnam; Saigon, Vietnam; Da Nang, Vietnam; Naha, Okinawa; and Bet Dagan, Israel.

Background and Methodology

Determining the spatial distribution of precipitation along a horizontal or vertical path continues to be one of the more difficult problems in present day climatology. Estimates of the instantaneous precipitation rate are essential for calculating short-path electromagnetic attenuation, rocket nose-cone erosion, flash-flood forecasting, and numerous other applications. To address these problems in an ideal manner an instrument system would be required that continuously measures precipitation amounts along horizontal and vertical paths. The orientation of the horizontal path would be changed to filter out a bias toward rain cells moving across the sampling path from a particular direction. The experiments would be made in various climatological regions and the period of record would be long enough to average out the effects of wet or dry years. This is not practicable.

Fortunately, the Illinois State Water Survey has made some of these measurements along horizontal lines of varying lengths [4] [15]. Although the vertical variations of precipitation have not been addressed as satisfactorily as the horizontal, reasonable assumptions can be made to estimate the precipitation along a slant path, if the horizontal distribution is known. Ideally, we would like to know the instantaneous precipitation rate distribution along a path at a particular instant. A typical weather station does not provide this information. Weather radars offer some valuable insight, and the developing digitized radar climatology [3] seems promising. However, this information is needed for many climatic regions, so the basic question is how can one infer an instantaneous spatial distribution from the standard weather records of hourly precipitation amounts. To accomplish this, one must first decide how to take the hourly precipitation amounts (i.e.,

clock-hour rates) and obtain instantaneous precipitation rates. After this has been done the time distribution may be translated into a spatial distribution (Bussey [2]). The question of translating the distribution is not addressed in this technical note. We will simply be presenting statistical models and show how they may be used to translate routine data (clock-hour precipitation rate distributions) into an estimate of the distributions of the rate of instantaneous precipitation.

Part of the work of the Illinois State Water Survey has been to measure point precipitation rates over a 1-minute period. They also have obtained recording rain gauge records and tabulated precipitation rates over both 1- and 4-minute periods. One may obtain a distribution of these 1-minute rates (or 4-minute rates) as a function of any clock-hour rate interval. These "model" distributions may then be used to predict the instantaneous rate (actually 1- or 4-minute rate) for any region having a similar precipitation regimen as determined from the available clock-hour data.

Development and Use of the Models

The technique used to develop the models is straightforward. One first decides which clock-hour intervals are of interest [16] see Table 1. Since the definition of clock-hour precipitation rate is the amount of precipitation that falls within a specific hour time frame, the rates can be thought of as the amount of precipitation (for the hour) as well as the average hourly rate. In the Illinois State Water Survey experiments, the clock-hour rates are determined by merely adding the 1-minute (or 4-minute) rates. (The actual weather station report is the total amount of precipitation that has fallen in the clock hour.)

After the interval of the clock-hour rates is defined, one then decides over which intervals the 1-minute (or 4-minute) rates will be grouped. (Note in Table 1 that these intervals are not uniform.)

The summation process works in the following manner: Within each discrete clock-hour time frame there is a string of 60 precipitation amounts (assuming 1-minute precipitation measurements). The total precipitation amount for the hour determines into which clock-hour block the data string falls and then the 60 data points are distributed throughout the one-minute intervals for that particular clock hour. The process is then repeated until all the data are exhausted.

The clock hour is not an arbitrary definition, it means a specific 60-minute period, i.e., 0800 to 0859. The period 0830 to 0929 is not a clock hour even though it is a 60-minute period. O'Reilly [14] checked to see if there was a significant difference between the 60 minutes beginning on the hour, and those intervals beginning 15 minutes, 30 minutes, and 45 minutes after the hour. O'Reilly averaged these pseudo clock hours with the actual clock-hour data to develop his models. Since the differences between the actual and pseudo clock hours are small no averaging process is employed in this report. The actual clock hour is the only 60-minute time frame used.

All the models (wet, dry, and annual) are derived in the manner outlined above. If the mean monthly precipitation is less than the mean annual the month is considered dry. Other months are considered wet. Mather's climatological atlases [6][7][8][9][10] are used to determine the mean precipitation values (see Table 2).

One of the more confusing points about this process is the convention of labeling the estimate of an instantaneous rate (either 1 or 4 minutes) in "in/hr". This is done by simply multiplying the minute rate by an appropriate factor (60 for 1-minute rates) to convert to an "hourly rate". This, of course, would be the frequency of occurrence of a specified hourly rate if the minute rate persisted for the entire hour. Casual observations reveal that the minute rates (especially high ones) seldom persist for an hour and this explains why the range of the minute rates is chosen as zero to $\geq$ 10 in/hr while the range of the clock-hour rate data is only a trace to $\geq$ 5.00 in/hr. The erratic nature of some of the clock-hour distributions above 2 in/hr can be attributed to the small sample size (see Table 3).

The usefulness of these model distributions of instantaneous rates lies in the fact that many stations have clock hourly precipitation distributions. Combining the two distributions gives an estimate of the annual, dry, and wet months distribution of instantaneous precipitation for the location of interest. See Tables 4-43 for the derived models.

Lenhard [5] has developed a technique (regression analysis) that estimates the tail of the instantaneous distribution by selected months. A more direct method is to multiply the observed clock-hour distribution for a location by the 1-minute (or 4-minute) model frequency distributions. This produces an estimate, in total number of hours, of the instantaneous distribution for each clock-hour rate interval. Summing each row will give the total time each clock-hour rate is observed. Summing a column will give the total time a particular instantaneous rate is expected.

After deriving the expected total instantaneous distribution (sum of the columns), one may check the results to see if the model used is reasonable. This may be done by calculating a secondary distribution of selected percentile values for each column. The procedure for this calculation is to break the instantaneous rate interval (each column) into the selected percentile values and then multiply each percentile value by the total number of hours for the instantaneous rate interval. Each column will then have a 10, 15, 20, etc., percentile value representing the total precipitation amount. O'Reilly [14] found that the mean amount of precipitation for a station correlated best with the total 35th percentile value (sum of the 35th percentile values for each column). This 35th percentile check is one criteria that may be used to determine if the expected distribution is reasonable.

At present all approaches to the problem of instantaneous precipitation rates are data bound. As samples from additional locations and longer periods of record become available these rough estimates can be refined.

Summary and Conclusions

This report is intended to expand the number of 1- and 4-minute precipitation rate models that can be used to estimate instantaneous precipitation rates in various climatic regions. The only additional input needed to generate the estimates are the clock-hour precipitation rates. It is hoped that additional sampling of 1-minute precipitation rates will be made in the near future. Some of the estimates presented herein are based on less than 1 year of data and it has been pointed out that this particular time frame may not be typical. Additional sampling is also required to develop the statistics for monthly models.

Table 1. Example Model Distribution of Instantaneous Precipitation Rates.

Percent contribution of instantaneous precipitation rate to clock-hourly precipitation rates.

Instantaneous rate observed over 1- or 4-minute period for (location).

Total number of months in POR is N.

Total number of missing months in POR is M.

Season is X - Y - Z (Dry).

	INSTANTANEOUS RATES (IN/HR)									
CLOCK-HOUR RATES (IN/HR)	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE										
0.01										
0.02-0.09										
0.10-0.24										
0.25-0.49										
0.50-0.99										
1.00-0.99										
2.00-2.99										
3.00-3.99										
4.00-4.99										
≥ 5.00										

Table 2. Wet/Dry Months Determination from Mather [6][7][8][9][10]. (-/+ values indicate months drier or wetter than dry/wet mean values.)

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean (mm)	Dry Mean (mm)	Wet Mean (mm)
Urbana IL POR 1902-1930	D	D-	W	W+	W+	W	W	W+	W	D	D	D-	75	56	88
Majuro Atoll, Marshall Islands (Jaluit M.I.) POR 1892-1913	D-	D-	W	W+	W+	W+	W+	D	W	D	D	W	333	275	375
Miami FL POR 1940-1960	D-	D-	D-	D	W	W	W+	W	W+	W+	D	D-	129	62	196
Franklin N.C. (Andrews N.C.) POR 1909-1930	W	W	W+	D	W	W	W+	D	D-	D-	D-	W+	128	103	147
Island Beach N.J. Atlantic City N.J.) POR 1906-1960	D-	W	W	D	W	D-	W	W+	D	W+	W	D	85	62	102
Woody Island AK (Kodiak AK) POR 49 years	D	D	D-	D-	W	D	D-	D	W	W+	W	W+	131	114	156
Freiburg, Germany POR 1891-1930	D-	D-	D	D	W+	W	W+	W	W	D	D	D-	50	35	72
Koblenz, Germany POR NNK	D	D-	D-	D	D	W+	W+	W	W	W	D	D	51	42	64
Pleiku, Vietnam POR 1939-44	D-	D-	D-	D	W	W	W+	W+	W+	D	D-	D-	212	55	432
Saigon, Vietnam POR 1907-1944, 1946	D-	D-	D-	D	W	W+	W+	W	W+	W	D	D	165	43	288
Da Nang, Vietnam (Tourane) POR 1931-1946	D	D-	D-	D-	D-	D-	D	D	W+	W+	W	W	173	65	390
Naha, Okinawa POR 50 years	D-	D-	D	D	W+	W+	W	W+	W	D	D-	D-	179	140	232
Bet Dagan, Israel Tel Aviv City, Israel POR 1901-1930	W+	W	D	D	D-	D-	D-	D-	D-	D	W	W+	45	11	114

Table 3. Number of Months of Data for Each Location.

Location	1-Minute Precipitation Rate Samples		
	Dry	Wet	Total
Urbana, Illinois	15	20	35
Majuro Atoll, Marshall Islands	5	8	13
Miami, Florida	6	6	12
Franklin, North Carolina	5	11	16
Island Beach, St. Park, New Jersey	5	7	12
Woody Island, Alaska	6	4	10

Location	4-Minute Precipitation Rate Samples		
	Dry	Wet	Total
Freiburg, Germany	13	10	23
Koblenz, Germany	6	5	11
Pleiku, Vietnam	13	10	23
Tan Son Nhut, Saigon, Vietnam	5	6	11
Da Nang, Vietnam	9	4	13
Naha, Okinawa	13	10	23
Bet Dagan, Israel	8	3	11

Table 4. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Urbana, Illinois - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 15. # MSG Mo: 1. DRY Mo: 1,2,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.56	3.03	0.39	0.03	0.01	0.0	0.0	0.0	0.0	280
0.01	88.89	9.64	1.47	0.0	0.0	0.0	0.0	0.0	0.0	60
0.02-0.09	57.27	31.82	9.92	0.79	0.16	0.03	0.01	0.0	0.0	258
0.10-0.24	22.01	19.15	43.54	11.77	2.72	0.69	0.11	0.0	0.0	63
0.25-0.49	16.06	12.27	26.36	28.48	12.27	3.33	1.21	0.0	0.0	11
0.50-0.99	15.00	2.50	8.33	35.00	25.00	9.17	5.00	0.0	0.0	2
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 5. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Urbana, Illinois - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 20. # MSG Mo: 0. WET Mo: 3,4,5,6,7,8,9.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-0.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCL-HR
TRACE	95.51	3.81	0.62	0.06	0.0	0.0	0.0	0.0	0.0	296
0.01	85.08	11.20	2.50	0.12	0.09	0.0	0.0	0.0	0.0	54
0.02-0.09	60.68	27.03	10.38	1.45	0.33	0.12	0.01	0.0	0.0	323
0.10-0.24	30.23	19.28	34.34	11.85	2.37	1.25	0.17	0.0	0.0	116
0.25-0.49	25.13	11.07	22.27	21.97	12.13	5.77	1.67	0.0	0.0	50
0.50-0.99	20.90	9.03	15.28	14.72	16.32	13.89	8.96	0.90	0.0	24
1.00-1.99	6.67	5.56	8.89	13.33	19.44	20.00	25.56	0.56	0.0	3
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 6. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Urbana, Illinois - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 35. # MSG Mo: 1. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.02	3.43	0.51	0.04	0.0	0.0	0.0	0.0	0.0	576
0.01	87.56	10.38	1.96	0.06	0.04	0.0	0.0	0.0	0.0	114
0.02-0.09	59.17	29.16	10.17	1.16	0.25	0.08	0.01	0.0	0.0	581
0.10-0.24	27.34	19.24	37.58	11.82	2.82	1.05	0.15	0.0	0.0	179
0.25-0.49	23.50	11.28	23.01	23.14	12.16	5.33	1.58	0.0	0.0	61
0.50-0.99	20.45	8.53	14.74	16.28	16.99	13.53	8.65	0.83	0.0	26
1.00-1.99	6.67	5.56	8.89	13.33	19.44	20.00	25.56	0.56	0.0	3
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 7. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Majuro Atoll, Marshall Islands - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 5. # MSG Mo: 1. DRY Mo: 1,2,[illegible],10,11.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.95	3.80	1.67	0.52	0.06	0.0	0.0	0.0	0.0	86
0.01	88.00	7.28	3.56	0.94	0.22	0.0	0.0	0.0	0.0	30
0.02-0.09	72.00	13.46	9.38	2.91	1.33	0.42	0.05	0.0	0.0	135
0.10-0.24	48.25	11.96	22.34	9.27	5.09	2.49	0.61	0.0	0.0	57
0.25-0.49	34.40	11.07	16.80	17.33	12.27	4.87	3.27	0.0	0.0	25
0.50-0.99	13.89	6.67	19.81	18.33	18.70	16.85	5.37	0.37	0.0	9
1.00-1.99	17.50	2.50	2.50	12.50	26.67	22.50	15.00	0.83	0.0	2
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 8. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Majuro Atoll, Marshall Islands - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 8. # MSG Mo: 1. WET Mo: 3,4,5,6,7,9,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.57	4.36	1.62	0.40	0.06	0.0	0.0	0.0	0.0	143
0.01	89.44	5.65	2.78	1.94	0.19	0.0	0.0	0.0	0.0	36
0.02-0.09	69.68	15.77	10.14	2.84	1.02	0.22	0.02	0.0	0.0	271
0.10-0.24	41.16	15.36	27.65	8.92	4.93	1.65	0.31	0.01	0.0	122
0.25-0.49	36.47	8.25	16.33	18.36	10.50	7.19	2.83	0.06	0.0	60
0.50-0.99	26.06	6.59	12.73	14.09	18.56	13.33	8.41	0.23	0.0	22
1.00-1.99	6.67	0.0	4.17	20.28	23.61	23.33	21.94	0.0	0.0	6
2.00-2.99	0.0	0.0	0.0	6.67	23.33	15.00	53.33	1.67	0.0	1
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 9. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Majuro Atoll, Marshall Islands - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 13. # MSG Mo: 2. ANNUAL MODE.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.71	4.15	1.64	0.44	0.06	0.0	0.0	0.0	0.0	229
0.01	88.79	6.39	3.13	1.49	0.20	0.0	0.0	0.0	0.0	66
0.02-0.09	70.65	15.00	10.03	2.87	1.12	0.29	0.03	0.0	0.0	406
0.10-0.24	43.42	14.27	25.96	8.03	4.98	1.92	0.41	0.01	0.0	179
0.25-0.49	35.86	9.08	16.47	18.06	11.02	6.51	2.96	0.04	0.0	85
0.50-0.99	22.53	6.61	14.78	15.32	15.60	14.35	7.35	0.27	0.0	31
1.00-1.99	9.38	0.62	3.75	12.33	24.37	23.12	20.20	0.21	0.0	8
2.00-2.99	0.0	0.0	0.0	6.67	23.33	15.00	53.33	1.67	0.0	1
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 10. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Miami, Florida - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 6. # MSG Mo: 0. DRY Mo: 1,2,3,4,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	95.44	3.19	1.18	0.20	0.0	0.0	0.0	0.0	0.0	34
0.01	83.19	12.64	3.33	0.69	0.14	0.0	0.0	0.0	0.0	12
0.02-0.09	57.66	27.22	12.92	1.61	0.50	0.10	0.0	0.0	0.0	84
0.10-0.24	26.61	24.64	33.33	12.71	1.61	0.94	0.16	0.0	0.0	32
0.25-0.49	23.96	5.73	20.73	33.02	12.29	3.33	0.94	0.0	0.0	16
0.15-0.99	12.78	11.11	36.67	15.00	8.33	6.11	8.33	1.67	0.0	3
1.00-1.99	0.0	35.00	18.33	18.33	3.33	3.33	10.00	11.67	0.0	1
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 11. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Miami, Florida - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 6. # MSG Mo: 2. WET Mo: 5,6,7,8,9,10.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (In/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	92.44	5.43	1.67	0.40	0.06	0.0	0.0	0.0	0.0	58
0.01	87.00	6.89	4.56	1.56	0.0	0.0	0.0	0.0	0.0	15
0.02-0.09	73.49	12.89	9.38	2.98	0.81	0.43	0.02	0.0	0.0	86
0.10-0.24	48.81	10.12	27.14	7.66	2.66	3.06	0.56	0.0	0.0	42
0.25-0.49	33.15	14.82	17.44	16.37	7.86	7.32	2.98	0.06	0.0	28
0.50-0.99	38.02	5.42	12.92	9.79	10.31	12.08	10.52	0.94	0.0	16
1.00-1.99	17.22	9.63	6.30	11.67	14.26	14.81	22.04	4.07	0.0	9
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 12. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Miami, Florida - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 12. # MSG Mo: 2. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.55	4.60	1.49	0.33	0.04	0.0	0.0	0.0	0.0	92
0.01	85.31	9.44	4.01	1.17	0.06	0.0	0.0	0.0	0.0	27
0.02-0.09	65.67	19.97	11.13	2.30	0.66	0.26	0.01	0.0	0.0	170
0.10-0.24	39.21	16.40	29.82	9.84	2.21	2.14	0.38	0.0	0.0	74
0.25-0.49	29.81	11.52	18.64	22.42	9.47	5.87	2.23	0.04	0.0	44
0.50-0.99	34.04	6.32	16.67	10.61	10.00	11.14	10.18	1.05	0.0	19
1.00-1.99	15.50	12.17	7.50	12.33	13.17	13.67	20.83	4.83	0.0	10
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 13. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Franklin, North Carolina - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 5. # MSG Mo: 1. DRY Mo: 4,8,9,10,11.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	92.18	5.78	1.80	0.20	0.03	0.0	0.0	0.0	0.0	49
0.01	83.57	11.35	4.52	0.56	0.0	0.0	0.0	0.0	0.0	21
0.02-0.09	56.54	27.40	14.10	1.67	0.27	0.03	0.0	0.0	0.0	132
0.10-0.24	26.50	21.31	34.08	13.62	3.24	1.10	0.14	0.0	0.0	71
0.25-0.49	10.61	9.09	31.36	35.00	10.15	3.18	0.61	0.0	0.0	22
0.50-0.99	17.22	18.33	13.89	7.78	16.67	18.89	7.22	0.0	0.0	3
1.00-1.99	30.83	0.83	5.83	3.33	13.33	23.33	14.17	8.33	0.0	2
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 14. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Franklin, North Carolina - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 11. # MSG Mo: 2. WET Mo: 1,2,3,4,5,6,7,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	91.43	6.84	1.60	0.12	0.01	0.0	0.0	0.0	0.0	148
0.01	83.79	12.20	3.56	0.42	0.04	0.0	0.0	0.0	0.0	44
0.02-0.09	55.36	29.81	13.11	1.40	0.29	0.03	0.0	0.0	0.0	389
0.10-0.24	17.32	20.41	45.74	14.43	1.70	0.38	0.03	0.0	0.0	218
0.25-0.49	9.70	5.28	26.37	42.76	13.25	2.22	0.42	0.0	0.0	84
0.50-0.99	5.56	3.15	10.19	27.22	41.85	9.63	2.41	0.0	0.0	9
1.00-1.99	34.17	4.17	5.83	16.67	7.50	14.17	10.00	7.50	0.0	2
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 15. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Franklin, North Carolina - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 16. # MSG Mo: 3. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	91.62	6.57	1.65	0.14	0.02	0.0	0.0	0.0	0.0	197
0.01	83.72	11.92	3.87	0.46	0.03	0.0	0.0	0.0	0.0	65
0.02-0.09	55.66	29.20	13.36	1.47	0.28	0.03	0.0	0.0	0.0	521
0.10-0.24	19.57	20.63	42.88	14.23	2.08	0.56	0.06	0.0	0.0	289
0.25-0.49	9.89	6.07	27.41	41.15	12.61	2.42	0.46	0.0	0.0	106
0.50-0.99	8.47	6.94	11.11	28.26	35.56	11.94	3.61	0.0	0.0	12
1.00-1.99	32.50	2.50	5.83	10.00	10.42	18.75	12.08	7.92	0.0	4
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 16. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Island Beach, State Park, New Jersey - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 5. # MSG Mo: 0. DRY Mo: 1,4,6,9,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.03	5.27	0.68	0.02	0.0	0.0	0.0	0.0	0.0	91
0.01	81.08	16.96	1.96	0.0	0.0	0.0	0.0	0.0	0.0	17
0.02-0.09	52.40	34.39	12.05	0.95	0.15	0.04	0.01	0.0	0.0	112
0.10-0.24	14.97	25.83	48.50	8.13	2.07	0.47	0.03	0.0	0.0	50
0.25-0.49	18.50	14.50	21.00	21.33	15.83	8.67	0.17	0.0	0.0	10
0.50-0.99	18.33	10.00	24.17	15.00	5.83	10.83	15.83	0.0	0.0	2
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 17. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Island Beach, State Park, New Jersey - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 7. # MSG Mo: 0. WET Mo: 2,3,5,7,8,10,11.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.58	5.60	0.74	0.08	0.0	0.0	0.0	0.0	0.0	106
0.01	80.25	16.36	3.33	0.06	0.0	0.0	0.0	0.0	0.0	27
0.02-0.09	48.18	40.04	10.67	0.95	0.13	0.04	0.0	0.0	0.0	141
0.10-0.24	16.71	22.50	47.62	10.44	2.25	0.44	0.05	0.0	0.0	72
0.25-0.49	13.70	7.78	38.70	19.63	12.04	5.56	2.59	0.0	0.0	9
0.50-0.99	54.17	0.83	9.17	3.33	9.17	10.83	10.00	2.50	0.0	2
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 18. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Island Beach, State Park, New Jersey - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 12. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.79	5.45	0.71	0.05	0.0	0.0	0.0	0.0	0.0	197
0.01	80.57	16.59	2.80	0.04	0.0	0.0	0.0	0.0	0.0	44
0.02-0.09	50.05	37.54	11.28	0.95	0.14	0.04	0.01	0.0	0.0	253
0.10-0.24	16.00	23.87	47.98	9.49	2.17	0.45	0.04	0.0	0.0	122
0.25-0.49	16.23	11.32	29.39	20.53	14.04	7.19	1.32	0.0	0.0	19
0.50-0.99	36.25	5.42	16.67	9.17	7.50	10.83	12.92	1.25	0.0	4
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 19. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Woody Island, Alaska - Dry Season.

Inst Precip Rate: 1 Min. # POR Mo: 6. # MSG Mo: 2. DRY Mo: 1,2,3,4,6.7,8.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.27	3.33	0.37	0.04	0.0	0.0	0.0	0.0	0.0	209
0.01	85.76	13.11	1.13	0.0	0.0	0.0	0.0	0.0	0.0	59
0.02-0.09	44.29	50.54	5.08	0.08	0.0	0.0	0.0	0.0	0.0	401
0.10-0.24	5.53	28.95	61.23	4.30	0.0	0.0	0.0	0.0	0.0	19
0.25-0.49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 20. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Woody Island, Alaska - Wet Season.

Inst Precip Rate: 1 Min. # POR Mo: 4. # MSG Mo: 0. WET Mo: 5,9,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.60	4.37	0.95	0.06	0.01	0.0	0.0	0.0	0.0	133
0.01	86.21	11.06	2.35	0.38	0.0	0.0	0.0	0.0	0.0	44
0.02-0.09	49.19	44.14	6.49	0.15	0.01	0.01	0.0	0.0	0.0	229
0.10-0.24	1.29	16.56	79.62	2.53	0.0	0.0	0.0	0.0	0.0	31
0.25-0.49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 21. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Woody Island, Alaska - Annual.

Inst Precip Rate: 1 Min. # POR Mo: 10. # MSG Mo: 2. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	95.62	3.73	0.59	0.05	0.0	0.0	0.0	0.0	0.0	342
0.01	85.95	12.23	1.65	0.16	0.0	0.0	0.0	0.0	0.0	103
0.02-0.09	46.07	48.21	5.60	0.11	0.01	0.0	0.0	0.0	0.0	630
0.10-0.24	2.90	21.27	72.63	3.20	0.0	0.0	0.0	0.0	0.0	50
0.25-0.49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 22. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Freiburg, Germany - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 13. # MSG Mo: 0. DRY Mo: 1,2,3,4,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	97.58	2.36	0.05	0.0	0.0	0.0	0.0	0.0	0.0	733
0.01	89.33	9.82	0.84	0.0	0.0	0.0	0.0	0.0	0.0	150
0.02-0.09	58.57	34.33	6.68	0.36	0.05	0.0	0.0	0.0	0.0	494
0.10-0.24	22.63	25.05	41.21	7.47	3.64	0.0	0.0	0.0	0.0	33
0.25-0.49	15.56	15.56	31.11	17.78	13.33	6.67	0.0	0.0	0.0	3
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 23. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Freiburg, Germany - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 10. # MSG Mo: 0. WET Mo: 5,6,7,8,9.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.03	3.89	0.08	0.0	0.0	0.0	0.0	0.0	0.0	329
0.01	85.60	12.50	1.79	0.12	0.0	0.0	0.0	0.0	0.0	56
0.02-0.09	55.67	32.57	10.58	1.08	0.08	0.02	0.0	0.0	0.0	339
0.10-0.24	24.33	21.56	38.70	11.26	3.81	0.35	0.0	0.0	0.0	77
0.25-0.49	15.76	15.15	19.39	22.42	20.00	6.67	0.61	0.0	0.0	11
0.50-0.99	0.0	0.0	13.33	40.00	26.67	20.00	0.0	0.0	0.0	1
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 24. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Freiburg, Germany - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 23. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	97.10	2.84	0.06	0.0	0.0	0.0	0.0	0.0	0.0	1062
0.01	88.32	10.55	1.10	0.03	0.0	0.0	0.0	0.0	0.0	206
0.02-0.09	57.39	33.61	8.27	0.66	0.06	0.01	0.0	0.0	0.0	833
0.10-0.24	23.82	22.61	39.45	10.12	3.76	0.24	0.0	0.0	0.0	110
0.25-0.49	15.71	15.24	21.90	21.43	18.57	6.67	0.48	0.0	0.0	14
0.50-0.99	0.0	0.0	13.33	40.00	26.67	20.00	0.0	0.0	0.0	1
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 25. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Koblenz, Germany - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 6. # MSG Mo: 0. DRY Mo: 1,2,3,4,5,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	97.05	2.79	0.16	0.0	0.0	0.0	0.0	0.0	0.0	339
0.01	86.54	12.42	1.05	0.0	0.0	0.0	0.0	0.0	0.0	51
0.02-0.09	59.54	30.62	8.77	1.03	0.04	0.0	0.0	0.0	0.0	187
0.10-0.24	24.76	15.24	40.00	16.19	3.81	0.0	0.0	0.0	0.0	7
0.25-0.49	46.67	0.0	13.33	20.00	6.67	13.33	0.0	0.0	0.0	1
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 26. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Koblenz, Germany - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 5. # MSG Mo: 0. WET Mo: 6,7,8,9,10.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.13	3.57	0.29	0.0	0.0	0.0	0.0	0.0	0.0	181
0.01	82.22	14.29	3.49	0.0	0.0	0.0	0.0	0.0	0.0	21
0.02-0.09	61.29	24.99	12.58	1.67	0.30	0.08	0.0	0.0	0.0	88
0.10-0.24	36.84	14.74	29.12	12.98	4.91	1.40	0.0	0.0	0.0	19
0.25-0.49	36.30	11.85	14.07	14.07	14.07	7.41	2.22	0.0	0.0	9
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 27. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Koblenz, Germany - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 11. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.73	3.06	0.21	0.0	0.0	0.0	0.0	0.0	0.0	520
0.01	85.28	12.96	1.76	0.0	0.0	0.0	0.0	0.0	0.0	72
0.02-0.09	60.10	28.53	9.99	1.24	0.12	0.02	0.0	0.0	0.0	275
0.10-0.24	33.59	14.37	32.05	13.85	4.62	1.03	0.0	0.0	0.0	26
0.25-0.49	37.33	10.67	14.00	14.67	13.33	8.00	2.00	0.0	0.0	10
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 28. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Pleiku, Vietnam - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 13. # MSG Mo: 3. DRY Mo: 1,2,3,4,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	95.64	4.24	0.12	0.0	0.0	0.0	0.0	0.0	0.0	55
0.01	86.67	12.67	0.67	0.0	0.0	0.0	0.0	0.0	0.0	10
0.02-0.09	62.56	20.44	14.56	2.33	0.11	0.0	0.0	0.0	0.0	60
0.10-0.24	41.85	18.15	20.74	12.59	4.44	2.22	0.0	0.0	0.0	18
0.25-0.49	45.00	11.67	5.00	8.33	21.67	8.33	0.0	0.0	0.0	4
0.50-0.99	57.78	2.22	2.22	8.89	4.44	8.89	11.11	4.44	0.0	3
1.00-1.99	8.89	2.22	13.33	20.00	11.11	17.78	22.22	4.44	0.0	3
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 29. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Pleiku, Vietnam - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 10. # MSG Mo: 3. WET Mo: 5,6,7,8,9.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.20	3.48	0.32	0.0	0.0	0.0	0.0	0.0	0.0	433
0.01	85.45	12.03	2.51	0.0	0.0	0.0	0.0	0.0	0.0	77
0.02-0.09	63.73	22.92	10.95	1.73	0.63	0.04	0.0	0.0	0.0	370
0.10-0.24	40.11	17.14	23.86	11.90	5.19	1.75	0.05	0.0	0.0	126
0.25-0.49	31.01	9.42	13.33	24.78	13.48	6.09	1.88	0.0	0.0	46
0.50-0.99	24.64	9.86	11.59	15.07	10.72	17.10	10.43	0.58	0.0	23
1.00-1.99	23.15	4.44	8.89	11.85	9.63	9.63	18.52	8.89	0.0	9
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	6.67	0.0	0.0	26.67	53.33	13.33	0.0	1
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	20.00	26.67	0.0	13.33	6.67	0.0	0.0	13.33	20.00	1

Table 30. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Pleiku, Vietnam - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 23. # MSG Mo: 6. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.13	3.67	0.30	0.0	0.0	0.0	0.0	0.0	0.0	488
0.01	85.59	12.11	2.30	0.0	0.0	0.0	0.0	0.0	0.0	87
0.02-0.09	63.57	22.57	11.46	1.81	0.56	0.03	0.0	0.0	0.0	430
0.10-0.24	40.32	17.27	23.47	11.99	5.09	1.81	0.05	0.0	0.0	144
0.25-0.49	32.13	9.60	12.67	23.47	14.13	6.27	1.73	0.0	0.0	50
0.50-0.99	28.46	5.37	10.51	14.36	10.00	16.15	10.51	1.03	0.0	26
1.00-1.99	23.33	3.89	10.00	13.89	10.00	11.67	19.44	7.78	0.0	12
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	6.67	0.0	0.0	26.67	53.33	13.33	0.0	1
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	20.00	26.67	0.0	13.33	6.67	0.0	0.0	13.33	20.00	1

Table 31. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Tan Son Nhut, Saigon, Vietnam - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 5. # MSG Mo: 0. DRY Mo: 1,2,3,4,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.29	3.81	1.90	0.0	0.0	0.0	0.0	0.0	0.0	14
0.01	74.67	21.33	4.00	0.0	0.0	0.0	0.0	0.0	0.0	5
0.02-0.09	53.83	29.63	13.58	2.47	0.49	0.0	0.0	0.0	0.0	27
0.10-0.24	41.67	13.75	30.00	6.67	5.42	2.50	0.0	0.0	0.0	16
0.25-0.49	66.67	0.0	5.00	5.00	5.00	16.67	1.67	0.0	0.0	4
0.50-0.99	37.78	6.67	8.89	4.44	6.67	26.67	8.89	0.0	0.0	3
1.00-1.99	0.0	0.0	13.33	13.33	26.67	26.67	10.00	10.00	0.0	2
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 32. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Tan Son Nhut, Saigon, Vietnam - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 6. # MSG Mo: 0. WET Mo: 5,6,7,8,9,10.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.80	5.33	0.86	0.0	0.0	0.0	0.0	0.0	0.0	85
0.01	82.00	15.67	1.67	0.67	0.0	0.0	0.0	0.0	0.0	20
0.02-0.09	66.04	20.12	10.39	2.51	0.94	0.0	0.0	0.0	0.0	170
0.10-0.24	45.00	13.17	24.08	9.50	5.83	2.17	0.25	0.0	0.0	80
0.25-0.49	34.22	10.22	17.11	16.00	14.00	6.89	1.56	0.0	0.0	30
0.50-0.99	31.11	5.71	9.21	11.75	13.65	19.68	8.57	0.32	0.0	21
1.00-1.99	15.56	4.44	4.44	5.19	20.74	13.33	34.07	2.22	0.0	9
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	13.33	0.0	0.0	0.0	0.0	13.33	20.00	40.00	13.33	1
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 33. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Tan Son Nhut, Saigon, Vietnam - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 11. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR) 0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	93.87	5.12	1.01	0.0	0.0	0.0	0.0	0.0	0.0	99
0.01	80.53	16.80	2.13	0.53	0.0	0.0	0.0	0.0	0.0	25
0.02-0.09	64.37	21.42	10.83	2.50	0.88	0.0	0.0	0.0	0.0	197
0.10-0.24	44.44	13.26	25.07	9.03	5.76	2.22	0.21	0.0	0.0	96
0.25-0.49	38.04	9.02	15.69	14.71	12.94	8.04	1.57	0.0	0.0	34
0.50-0.99	31.94	5.83	9.17	10.83	12.78	20.56	8.61	0.28	0.0	24
1.00-1.99	12.73	3.64	6.06	6.67	21.82	15.76	29.70	3.64	0.0	11
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	13.33	0.0	0.0	0.0	0.0	13.33	20.00	40.00	13.33	1
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 34. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Da Nang, Vietnam - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 9. # MSG Mo: 0. DRY Mo: 1,2,3,4,5,6,7,8.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	96.08	3.60	0.32	0.0	0.0	0.0	0.0	0.0	0.0	169
0.01	84.37	13.79	1.84	0.0	0.0	0.0	0.0	0.0	0.0	29
0.02-0.09	58.44	29.60	10.31	1.47	0.19	0.0	0.0	0.0	0.0	141
0.10-0.24	22.14	21.13	40.63	12.45	3.02	0.63	0.0	0.0	0.0	53
0.25-0.49	26.67	7.72	19.65	27.37	14.04	2.46	2.11	0.0	0.0	19
0.50-0.99	17.04	13.33	7.41	20.00	20.74	14.07	6.67	0.74	0.0	6
1.00-1.99	16.67	0.0	0.0	3.33	20.00	26.67	33.33	0.0	0.0	3
2.00-2.99	0.0	0.0	0.0	0.0	13.33	40.00	40.00	6.67	0.0	1
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 35. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Da Nang, Vietnam - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 4. # MSG Mo: 0. WET Mo: 9,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	85.74	3.56	0.70	0.0	0.0	0.0	0.0	0.0	0.0	133
0.01	87.65	9.14	2.96	0.25	0.0	0.0	0.0	0.0	0.0	27
0.02-0.09	68.14	18.23	10.63	2.49	0.37	0.08	0.0	0.0	0.0	165
0.10-0.24	39.60	13.97	26.67	12.30	5.87	1.43	0.16	0.0	0.0	84
0.25-0.49	30.43	9.86	15.36	19.86	13.62	8.55	2.32	0.0	0.0	46
0.50-0.99	25.71	8.33	12.86	12.14	18.10	14.76	7.86	0.24	0.0	28
1.00-1.99	14.67	1.33	7.33	8.00	22.67	28.67	15.33	1.33	0.67	10
2.00-2.99	3.33	0.0	3.33	6.67	23.33	26.67	30.00	0.0	6.67	2
3.00-3.99	43.33	10.00	10.00	3.33	16.67	0.0	0.0	0.0	16.67	2
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 36. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Da Nang, Vietnam - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 13. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	95.93	3.58	0.49	0.0	0.0	0.0	0.0	0.0	0.0	298
0.01	86.96	11.55	2.38	0.12	0.0	0.0	0.0	0.0	0.0	56
0.02-0.09	63.64	23.53	10.48	2.02	0.29	0.04	0.0	0.0	0.0	304
0.10-0.24	32.85	15.74	32.07	12.36	4.77	1.12	0.10	0.0	0.0	137
0.25-0.49	29.33	9.23	16.62	22.05	13.74	6.77	2.26	0.0	0.0	65
0.50-0.99	23.60	9.55	11.53	14.05	18.74	14.59	7.57	0.36	0.0	37
1.00-1.99	16.00	1.11	6.11	7.22	22.22	28.33	18.33	1.11	0.56	12
2.00-2.99	2.22	0.0	2.22	4.44	20.00	31.11	33.33	2.22	4.44	3
3.00-3.99	43.33	10.00	10.00	3.33	16.67	0.0	0.0	0.0	16.67	2
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 37. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rate for Naha, Okinawa - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 13. # MSG Mo: 0. DRY Mo: 1,2,3,4,10,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATE (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	95.27	4.47	0.26	0.0	0.0	0.0	0.0	0.0	0.0	443
0.01	82.97	14.95	2.07	0.0	0.0	0.0	0.0	0.0	0.0	74
0.02-0.09	57.50	28.82	11.99	1.52	0.17	0.0	0.0	0.0	0.0	347
0.10-0.24	24.87	21.28	36.97	12.92	3.54	0.41	0.0	0.0	0.0	130
0.25-0.49	11.01	7.44	28.99	37.98	10.08	4.03	0.47	0.0	0.0	43
0.50-0.99	5.83	3.33	15.00	26.67	25.00	20.00	3.33	0.83	0.0	1[illegible]
1.00-1.99	6.67	8.89	10.00	6.67	21.11	27.78	17.78	1.11	0.0	6
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 38. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Naha, Okinawa - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 10. # MSG Mo: 1. WET Mo: 5,6,7,8,9.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.58	4.72	0.69	0.0	0.0	0.0	0.0	0.0	0.0	309
0.01	84.[illegible]	12.27	3.07	0.0	0.0	0.0	0.0	0.0	0.0	50
0.02-0.0[illegible]	60.52	23.37	12.49	2.34	0.[illegible]	0.05	0.0	0.0	0.0	24[illegible]
0.10-0.24	24.25	19.35	38.16	12.91	3.62	1.00	0.10	0.0	0.0	127
0.25-0.49	22.02	10.71	21.82	23.54	13.43	7.47	1.01	0.0	0.0	6[illegible]
0.[illegible]-0.99	10.54	5.01	15.77	12.71	24.52	17.63	5.36	0.43	0.22	31
1.00-1.99	3.33	1.67	5.00	6.67	23.33	36.67	23.33	0.0	0.0	4
2.00-2.99	0.0	0.0	0.0	0.0	26.67	26.67	40.00	6.67	0.0	1
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 39. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Naha, Okinawa - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 23. # MSG Mo: 1. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.90	4.57	0.43	0.0	0.0	0.0	0.0	0.0	0.0	752
0.01	83.[illegible]	13.37	2.47	0.0	0.0	0.0	0.0	0.0	0.0	12[illegible]
0.02-0.09	58.75	26.31	12.20	1.86	0.36	0.02	0.0	0.0	0.0	59[illegible]
0.10-0.24	24.57	20.62	37.56	12.92	3.58	0.70	0.05	0.0	0.0	257
0.25-0.49	17.68	9.42	24.65	29.24	12.11	6.12	0.80	0.0	0.0	10[illegible]
0.50-0.99	8.94	4.96	16.17	21.42	24.68	18.44	4.68	0.57	0.14	47
1.00-1.99	5.33	6.00	8.00	6.67	22.00	31.33	20.00	0.67	0.0	10
2.00-2.99	0.0	0.0	0.0	0.0	26.67	26.67	40.00	6.67	0.0	1
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 40. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Bet Dagan, Israel - Dry Season.

Inst Precip Rate: 4 Min. # POR Mo: 8. # MSG Mo: 0. DRY Mo: 3,4,5,6,7,8,9,10.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.52	5.24	0.24	0.0	0.0	0.0	0.0	0.0	0.0	29
0.01	83.64	12.12	3.64	0.61	0.0	0.0	0.0	0.0	0.0	11
0.02-0.09	66.06	17.42	13.48	2.73	0.30	0.0	0.0	0.0	0.0	44
0.10-0.24	47.06	12.16	21.57	10.20	7.06	1.96	0.0	0.0	0.0	17
0.25-0.49	20.00	15.56	26.67	17.78	17.78	2.22	0.0	0.0	0.0	3
0.50-0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 41. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Bet Dagan, Israel - Wet Season.

Inst Precip Rate: 4 Min. # POR Mo: 3. # MSG Mo: 0. WET Mo: 1,2,11,12.

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	85.09	4.72	0.36	0.0	0.0	0.0	0.0	0.0	0.0	111
0.01	84.33	10.33	5.00	0.33	0.0	0.0	0.0	0.0	0.0	20
0.02-0.09	61.24	24.13	12.12	2.28	0.26	0.0	0.0	0.0	0.0	126
0.10-0.24	35.87	18.53	29.07	11.60	3.33	1.47	0.13	0.0	0.0	50
0.25-0.49	29.63	8.15	22.22	19.63	12.59	6.67	1.11	0.0	0.0	18
0.50-0.99	13.33	13.33	20.00	0.0	33.33	20.00	0.0	0.0	0.0	1
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Table 42. Percent Contribution of Instantaneous Precipitation Rate to Clock-Hour Precipitation Rates for Bet Dagan, Israel - Annual.

Inst Precip Rate: 4 Min. # POR Mo: 11. # MSG Mo: 0. ANNUAL MODEL

CLOCK-HOUR RATES (IN/HR)	INSTANTANEOUS RATES (IN/HR)									
	0.00-0.03	0.04-0.09	0.10-0.24	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	≥ 10.00	TOT NO CLOCK-HR
TRACE	94.92	4.75	0.34	0.0	0.0	0.0	0.0	0.0	0.0	139
0.01	84.09	10.97	4.52	0.43	0.0	0.0	0.0	0.0	0.0	31
0.02-0.09	68.47	22.39	12.47	2.39	0.27	0.0	0.0	0.0	0.0	170
0.10-0.24	48.71	16.92	27.16	11.24	4.28	1.59	0.10	0.0	0.0	67
0.25-0.49	30.25	9.21	22.86	19.37	14.33	6.03	0.95	0.0	0.0	21
0.50-0.99	13.33	13.33	20.00	0.0	33.33	20.00	0.0	0.0	0.0	1
1.00-1.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
2.00-2.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3.00-3.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
4.00-4.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
≥ 5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

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